10/004,723

Art Unit:

2616

**AMENDMENTS TO THE CLAIMS:** 

This listing of the claims will replace all prior versions, and listings, of the claims in this

application.

Please cancel claims 8, 17, 21, and 22 without prejudice.

**Listing of Claims:** 

1. (Currently Amended) A mobile station executed method for changing from a current cell to a

new cell in a wireless packet data network, comprising:

entering a the new cell;

generating a cell change logical link control packet data unit (PDU) message for

informing the network of the location of the mobile station in the new cell:

buffering the cell change logical link control packet data unit PDU message into a logical

link control packet data unit PDU message transmit queue such that it is selected for transmission

prior to before any buffered packet data units PDUs that were present before the mobile station

entered the new cell;

a radio link control/ medium access control unit of a mobile station initiating an uplink

temporary block flow in the new cell;

indicating to a radio link control/ medium access control of the network if an ACK or an

UNACK radio link control mode is to be used when transmitting the cell change packet data unit

message; and

transmitting the buffered cell change packet data unit PDU before any of the buffered

packet data units PDUs that were present before the mobile station entered the new cell.

2. (Currently Amended) A method as in claim 1, wherein the step of transmitting includes a

preliminary step of requesting an uplink resource for transmitting the cell change packet data unit

<del>PDU</del>.

2

10/004,723

Art Unit:

2616

3. (Currently Amended) A method as in claim 1, wherein the step of transmitting includes a preliminary step of requesting an uplink temporary block flow Temporary Block Flow (TBF) for transmitting the cell change packet data unit PDU.

4. (Currently Amended) A method as in claim 1, wherein the wireless packet data network, in response to receiving the cell change packet data unit PDU, transmits downlink packet data units PDUs for the mobile station are transmitted into the new cell.

5. (Currently Amended) A method as in claim 1, wherein the generated cell change <u>packet data</u> <u>unit PDU</u> is transmitted only if a first <u>packet data unit PDU</u> in the transmit queue exceeds a predetermined length, otherwise the cell change <u>packet data unit PDU</u> is discarded and the first <u>packet data unit PDU</u> in the transmit queue is transmitted instead.

6. (Currently Amended) A method as in claim 1, wherein the wireless packet data network is comprised of a General Packet Radio Service (GPRS) network, wherein the PDUs are Logical Link Control (LLC) PDUs, and where the cell change logical link control LLC packet data unit PDU has a length that fits within one radio link control Radio Link Control (RLC) data block.

7. (Currently Amended) A method as in claim 6, wherein the step of generating operates a logical link control LLC unit to use a service access point indicator Service Access Point Indicator (SAPI) of a general purpose radio service mobility management GPRS Mobility Management (GMM) unit to form an empty a general purpose radio service mobility management GMM packet data unit PDU, and where a mobile station location update procedure is triggered by a serving general packet radio service support node Serving GPRS Support Node (SGSN) when the a general purpose radio service mobility management GMM packet data unit PDU is received.

8. (Canceled).

9. (Currently Amended) A method as in claim 68, wherein the <u>radio link control/ medium access</u> <u>control RLC/MAC</u> unit of the mobile station selects either the ACK or the UNACK <u>radio link</u> <u>control RLC</u> mode based on the UNACK <u>radio link control RLC</u> mode of a next queued <u>logical link control LLC</u> <u>packet data unit PDU</u> in the transmit queue.

10/004,723

Art Unit:

2616

10. (Currently Amended) A method as in claim 1, wherein the step of generating includes setting a priority level of the cell change <u>packet data unit</u> <del>PDU</del> such that the step of buffering the cell change <u>packet data unit</u> <del>PDU</del> message into the <u>packet data unit</u> <del>PDU</del> transmit queue causes the cell change <u>packet data unit</u> <del>PDU</del> to be transmitted before any lower priority <u>packet data units</u> <del>PDUs</del>.

11. (Currently Amended) An apparatus A mobile station comprising: a packet data buffer and a controller that is responsive to changing location from a previous cell to a new cell in a wireless packet data network for generating a cell change logical link control packet data unit (PDU) message for informing the wireless packet data network of the presence of the apparatus mobile station in the new cell and for buffering the cell change logical link control packet data unit PDU message into the packet data buffer such that it is selected for transmission prior to any buffered packet data units PDUs that were present before the apparatus mobile station entered the new cell, the controller being arranged to operate a radio link control/ medium access control unit to initiate an uplink temporary block flow in the new cell, and to indicate to a radio link control/ medium access control of the network if an ACK or an UNACK radio link control mode is to be used when transmitting the cell change logical link control packet data unit, said apparatus mobile station comprising a transmitter for transmitting the buffered cell change logical link control packet data unit PDU message for informing the wireless packet data network of the cell in which the apparatus mobile station is currently located so that packet data intended for the apparatus mobile-station is not transmitted into the previous cell by the wireless packet data network.

12. (Currently Amended) An apparatus A mobile station as in claim 11 wherein the controller, prior to operating said transmitter for transmitting the buffered cell change <u>logical link control</u> <u>packet data unit PDU</u>, requests an uplink resource for transmitting the cell change <u>logical link control</u> <u>packet data unit PDU</u>.

13. (Currently Amended) An apparatus A mobile station as in claim 11 wherein the controller, prior to operating said transmitter for transmitting the buffered cell change packet data unit PDU,

10/004,723

Art Unit:

2616

requests an uplink <u>temporary block flow</u> Temporary Block Flow (TBF) for transmitting the cell change <u>packet data unit</u> PDU.

14. (Currently Amended) An apparatus A mobile station as in claim 11, wherein the generated cell change packet data unit PDU is transmitted only if a first packet data unit PDU in the transmit buffer exceeds a predetermined length, otherwise the cell change packet data unit PDU is discarded and the first packet data unit PDU in the transmit queue is transmitted instead.

15. (Currently Amended) An apparatus A mobile station as in claim 11, wherein the wireless packet data network is comprised of a General Packet Radio Service (GPRS) network, wherein the PDUs are Logical Link Control (LLC) PDUs, and where the cell change logical link control LLC packet data unit PDU has a length that fits within one radio link control Radio Link Control (RLC) data block.

16. (Currently Amended) An apparatus A mobile station as in claim 15, wherein said controller, when generating the cell change packet data unit PDU, operates a logical link control LLC unit to use a service access point indicator Service Access Point Indicator (SAPI) of a general purpose radio service mobility management GPRS Mobility Management (GMM) unit to form an empty general purpose radio service mobility management GMM packet data unit PDU, and where a apparatus mobile station location update procedure is triggered by a serving general purpose service support node Serving GPRS Support Node (SGSN) when the general purpose radio service mobility management GMM packet data unit PDU is received.

## 17. (Canceled).

18. (Currently Amended) An apparatus A mobile station as in claim 15 17, wherein the radio link control/ medium access control RLC/MAC unit of the apparatus mobile station selects either the ACK or the UNACK radio link control RLC mode based on the radio link control RLC mode of a next queued logical link control LLC packet data unit PDU in the transmit buffer.

19. (Currently Amended) An apparatus A mobile station as in claim 11, wherein controller sets a priority level of the cell change packet data unit PDU such when buffering the cell change packet

10/004,723

Art Unit:

2616

<u>data unit PDU</u> message into the <u>packet data unit PDU</u> transmit queue the cell change <u>packet data</u> <u>unit PDU</u> is caused to be transmitted before any lower priority <u>packet data units PDUs</u>.

20. (Currently Amended) A method for informing a Serving General Packet Radio Service (GPRS) Support Node (SGSN) of a wireless network that a Mobile Station (MS) has made a cell change, comprising:

changing from a first cell to a second cell with the a mobile station MS; and

prior to the a serving general packet radio service support node SGSN receiving at least one of a packet data unit Packet Data Unit (PDU) and a message from the mobile station MS, notifying the serving general packet radio service support node SGSN of the mobile station MS cell change, wherein notifying the serving general packet radio service support node of the mobile station cell change comprises

in response to the mobile station making access in the second cell, sending a channel request that indicates a cell update operation;

establishing an uplink temporary block flow for transferring logical link control packet data units from the mobile station to the network;

in response to the network receiving an unknown temporary logical link identifier from the mobile station, sending a message to the serving general packet radio service support node; and

<u>based on the message, determining with the serving general packet radio service support</u> node that the mobile station is located in the second cell.

- 21. (Cancelled).
- 22. (Canceled).
- 23. (Currently Amended) A method as in claim 20 22, wherein the temporary logical link identifier TLLI is received in a packet resource request Packet Resource Request message, in the

10/004,723

Art Unit:

2616

case of a two phase access, or in a first <u>radio link control</u> Radio Link Control (RLC) data block, in the case of a one phase access.

24. (Currently Amended) A method as in claim 20, wherein the step-of notifying occurs in response to the mobile station MS being assigned a time division multiple access TDMA frame number of when to make the cell change.

25. (Currently Amended) A method as in claim 20, wherein the step-of notifying occurs in response to the network receiving a radio link control/ medium access control Radio Link Control/Medium Access Control (RLC/MAC) message from the mobile station MS.

26. (Currently Amended) A method as in claim 20, wherein the step of notifying occurs in response to the network receiving a temporary logical link identifier Temporary Logical Link Identifier (TLLI) from the mobile station MS.

27. (Currently Amended) A method for organizing packet data units (PDUs) into a transmit queue, comprising:

passing a <u>cell change logical link control packet data unit message</u> to a <u>radio link control</u>

Radio Link Control (RLC) unit for informing a network of the location of a mobile station in a <u>new cell</u>, the <u>cell change logical link control</u> <u>packet data unit PDU message</u> having a flag for indicating a priority of the <u>packet data unit PDU</u> relative to other <u>packet data units PDUs</u>;

storing the <u>cell change logical link control packet data unit PDU message</u> into <u>a logical link control packet data unit message</u> the transmit <u>message</u> queue in accordance with the indicated priority;

a radio link control/ medium access control unit of a mobile station initiating an uplink temporary block flow in the new cell;

indicating to a radio link control/ medium access control of the network if an ACK or an UNACK radio link control mode is to be used when transmitting the cell change packet data unit message; and

10/004,723

Art Unit:

2616

transmitting the stored <u>cell change logical link control packet data unit PDU</u> to a radio channel before any stored <u>packet data units PDUs</u> having a lower priority.

28. (Currently Amended) A method as in claim 27, where the RLC unit is associated with a mobile station, where the PDU is a cell change PDU, and where the cell change packet data unit PDU is assigned a highest priority.

29. (Currently Amended) A computer readable medium encoded with a computer program the execution of which in association with a device cell change operation performs operations of:

responsive to entering a new cell, generating a cell change <u>logical link control</u> packet data unit (PDU) message for informing a wireless network of the location of the device; and

buffering the cell change <u>logical link control packet data unit PDU</u> message into a <u>logical link control packet data unit PDU message</u> transmit queue such that it is transmitted to the network before any already buffered <u>packet data units PDUs that were present before the mobile station entered the new cell;</u>

a radio link control/ medium access control unit of a mobile station initiating an uplink temporary block flow in the new cell;

indicating to a radio link control/ medium access control of the network if an ACK or an UNACK radio link control mode is to be used when transmitting the cell change packet data unit message; and

transmitting the buffered cell change packet data unit before any of the buffered packet data units that were present before the mobile station entered the new cell.

30. (Currently Amended) A computer readable medium encoded with a computer program as in claim 29, further comprising requesting from the wireless network an uplink resource for transmitting the cell change packet data unit PDU.

31. (Currently Amended) A computer readable medium encoded with a computer program as in claim 29, further comprising requesting from the wireless network an uplink temporary block flow Temporary Block Flow (TBF) for transmitting the cell change packet data unit PDU.

10/004,723

Art Unit:

2616

32. (Currently Amended) A computer readable medium encoded with a computer program as in claim 29, where the wireless network is comprised of a General Packet Radio Service (GPRS) network, where the PDUs are Logical Link Control (LLC) PDUs, where the cell change logical link control LLC packet data unit PDU has a length that fits within one radio link control Radio Link Control (RLC) data block, and where the generating operation operates a logical link control LLC unit to use a service access point indicator Service Access Point Indicator (SAPI) of a general packet radio service mobility management GPRS Mobility Management (GMM) unit to form an empty general packet radio service mobility management GMM packet data unit PDU, and where a device location update procedure is triggered by a serving general packet radio service mobility management GMM packet data unit PDU is received.

33. (Currently Amended) A computer readable medium encoded with a computer program as in claim 29, where the wireless network is comprised of a General Packet Radio Service (GPRS) network, where the PDUs are Logical Link Control (LLC) PDUs, where the cell change link logical control LLC packet data unit PDU has a length that fits within one radio link control Radio Link Control (RLC) data block, and where a radio link control/ medium access control Radio Link Control/Medium Access Control (RLC/MAC) unit initiates an uplink temporary block flow Temporary Block Flow (TBF) in the new cell, and indicates to a RLC/MAC of the wireless network if an ACK or an UNACK RLC mode is to be used when transmitting the cell change PDU.

34. (Currently Amended) A computer readable medium encoded with a computer program as in claim 33, where a device <u>radio link control/medium access control RLC/MAC</u> unit selects either the ACK or the UNACK <u>radio link control RLC</u> mode based on the <u>radio link control RLC</u> mode of a next queued <u>logical link control LLC</u> packet data unit <u>PDU</u> in the transmit queue.

35. (Currently Amended) A computer readable medium encoded with a computer program as in claim 29, where the generating operation comprises setting a priority level of the cell change packet data unit PDU such that buffering the cell change packet data unit PDU message into the

10/004,723

Art Unit:

2616

packet data unit PDU transmit queue causes the cell change packet data unit PDU to be transmitted before any lower priority packet data units PDUs.

36. (Currently Amended) A device, comprising:

means, responsive to entering a new cell, for generating a cell change <u>logical link control</u> packet data unit (PDU) <u>message</u> for informing a wireless network of the location of the device; and

means for buffering the cell change <u>logical link control packet data unit PDU</u> message into a <u>logical link control packet data unit PDU message</u> transmit queue such that it is transmitted to the wireless network before any already buffered <u>packet data units PDUs that were present</u> <u>before the mobile station entered the new cell;</u>

means for initiating an uplink temporary block flow in the new cell;

means for indicating to a radio link control/ medium access control of the network if an ACK or an UNACK radio link control mode is to be used when transmitting the cell change packet data unit message; and

means for transmitting the buffered cell change packet data unit before any of the buffered packet data units that were present before the mobile station entered the new cell.

- 37. (Currently Amended) A device as in claim 36, further comprising means for requesting from the wireless network an uplink resource for transmitting the cell change packet data unit PDU.
- 38. (Currently Amended) A device as in claim 36, further comprising means for requesting from the wireless network an uplink temporary block flow Temporary Block Flow (TBF) for transmitting the cell change packet data unit PDU.
- 39. (Currently Amended) A device as in claim 36, where the wireless network is comprised of a General Packet Radio Service (GPRS) network, where the PDUs are Logical Link Control (LLC) PDUs, where the cell change logical link control LLC packet data unit PDU has a length that fits within one radio link control Radio Link Control (RLC) data block, and where the generating means operates a logical link control LLC unit to use a service access point indicator Service

10/004,723

Art Unit:

2616

Access Point Indicator (SAPI) of a general packet radio service mobility management GPRS Mobility-Management (GMM) unit to form an empty general packet radio service mobility management GMM packet data unit PDU, and where a device location update procedure is triggered by a serving general purpose radio service support node Serving GPRS Support Node (SGSN) when the general packet radio service mobility management GMM packet data unit PDU is received.

40. (Currently Amended) A device as in claim 36, where the wireless network is comprised of a General Packet Radio Service (GPRS) network, where the PDUs are Logical Link Control (LLC) PDUs, where the cell change logical link control LLC packet data unit PDU has a length that fits within one radio link control Radio Link Control (RLC) data block, and where a radio link control/medium access control Radio Link Control/Medium Access Control (RLC/MAC) unit initiates an uplink temporary block flow Temporary Block Flow (TBF) in the new cell, and indicates to a RLC/MAC of the wireless network if an ACK or an UNACK RLC mode is to be used when transmitting the cell change PDU.

41. (Currently Amended) A device as in claim 40, where a device <u>radio link control/ medium access control</u> <u>RLC/MAC</u> unit selects either the ACK or the UNACK <u>radio link control</u> <u>RLC</u> mode based on the <u>radio link control</u> <u>RLC</u> mode of a next queued <u>logical link control</u> <u>LLC packet</u> <u>data unit PDU</u> in the transmit queue.

42. (Currently Amended) A device as in claim 36, where the generating means sets a priority level of the cell change <u>packet data unit PDU</u> such that buffering the cell change <u>packet data unit PDU</u> message into the <u>packet data unit PDU</u> transmit queue causes the cell change <u>packet data unit PDU</u> to be transmitted before any lower priority <u>packet data units PDUs</u>.